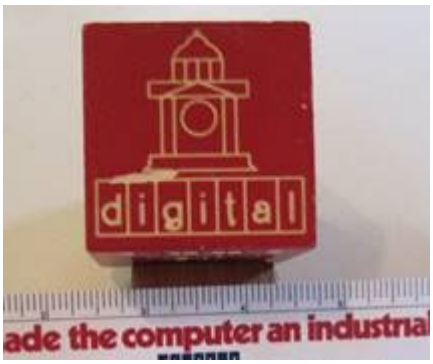
From Steve Gray, July 1, 2021

I was reading information on DEC connect and saw the comment and pictures submitted by Lou Klotz. For your reference, this is the picture of a red block for Children's Hospital from his submission.



The attached picture is of the flexible manufacturing work cell that made the block. The CIMlab team working in the Maynard mill created the FMC for DECWorld '90. The cell was a duplicate of the one developed for the Sales Office at Toronto called the FMC a few weeks before.

The work cell was an interactive demonstration to show how DEC hardware and software can work directly with manufacturing equipment. DEC sold a product called BASEstar in addition to the NAS (Networked Application Support) products. This environment enabled 3rd party software applications to connect directly to manufacturing equipment like robots, PLCs (programmable logic controllers) in addition to manufacturing process equipment like CNC-controlled milling machines. BASEstar provided a level of integration that was new to manufacturing. The demonstration product was "toy blocks" and "word assemblies." The selected word is assembled using toy blocks placed into a curved rack.

This photograph was taken at AutoFact '90 in Detroit and showing about half of the cell. I was a member of the team that built both cells. I also operated the work cell at DecWorld '90 at the Boston Trade Center. I recall I was not to give out the blocks to customers during the day but was often approached by the sales team for the customer's logo block at the end of the day.

The demonstration would often start with a customer entering an order for a word, as their company name, into a 3rd party MRP (material requirements planning) as a customer order or using SFC (shop floor control) to place a new work order for the cell. Using their business card, I would create a line drawing of their logo using computer-aided design software. Once the order was entered into the system the automation starts and the cell would process the order.

If you look at the photograph of the cell, you can see a couple of the PLCs at the back wall. We used the products from Allen Bradley for our demonstration. At one work station, we displayed a statistical control software from Salerno working with data directly from the vision system that made measurements of each side of the block after it was milled by a CNC milling machine checking process quality. The milling machines were a product of Light Machines and used the same data as a full-size CNC. You can see one of the two milling machines running under the blue rack that holds completed toy blocks. The blocks would slide to the bottom of the rack for the robot arm from Eshed Robotic to pick up. The robot, moving in this picture, is placing a block on a curved rack.

The other mill, not shown in this picture, had a rack of "blank" blocks above it. When a letter block is used in a word assembly the robot would load a blank block into that mill to make a replacement of that letter block. Once the letter block was completed on all sides the robot would take it out of the

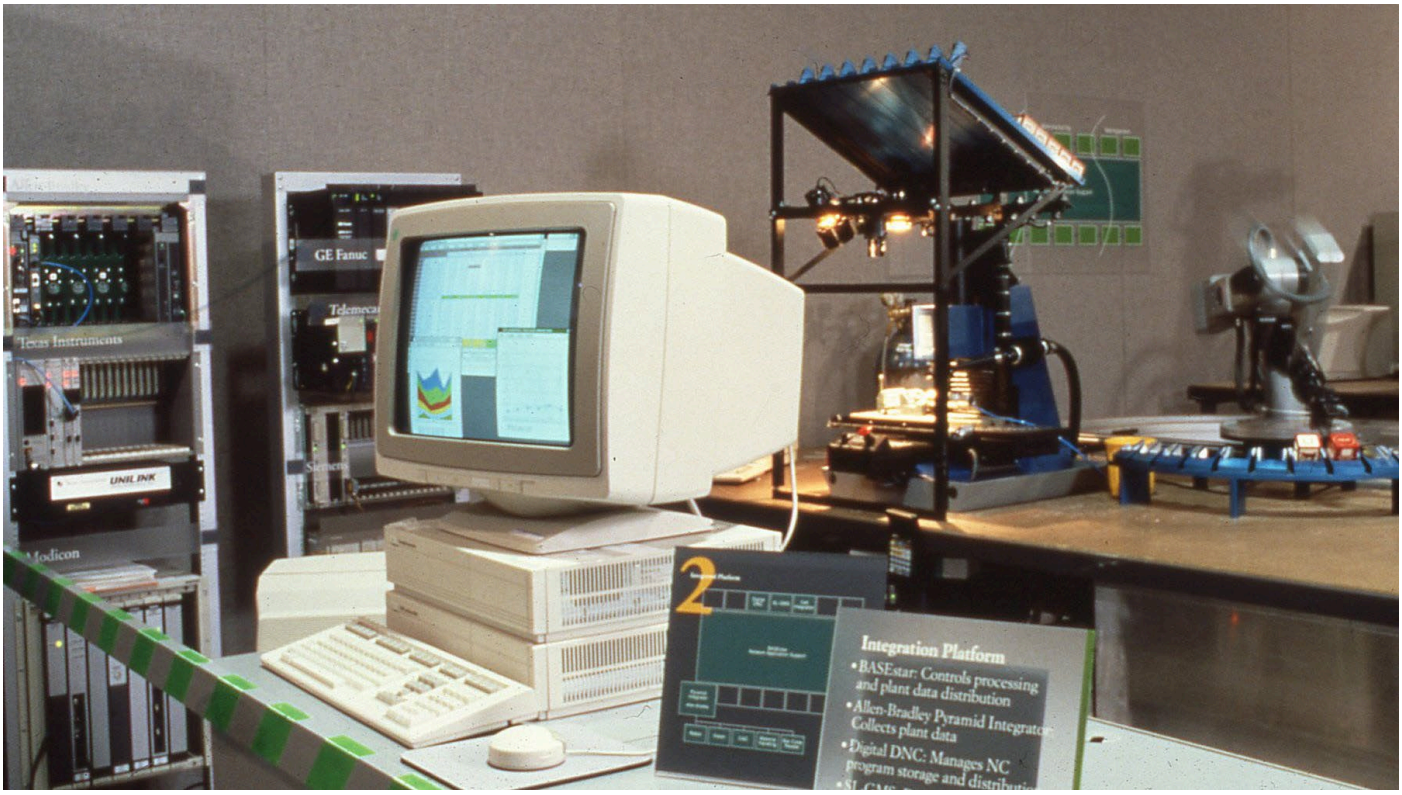
mill. It would then be put on the conveyor to the other side for the other robot would pick it up and put it into the correct finished toy block rack. If you look behind the robot you can see the curved aluminum track of the conveyor.

Once the word was completed the customer could control the cell. This “final inspection” would allow the customer to replace a block with a new one. It was a bit of humor but the “rejected” letter block would be taken off the rack and placed in the small yellow waste bucket on the table.

During the whole demonstration, the shop floor application was being updated, a 3rd party graphical display program would animate the status of sensors and manufacturing devices. All activity was recorded into a DEC RDB database that would create inventory reporting, cell performance, and quality control charts. On another workstation, we would show data from the cell in a decision support software. Sometimes we would use BBN analysis tools to review results and trends.

The block in Lou’s picture shows the DEC logo and our version of the clock tower. What we called the logo block had DEC logos on 5 sides with the last side a customer logo created during the demonstration on a CAD application from AutoCAD. The CAD logo file was passed to the milling machine using DEC DNC. The customer logo completes the final side of the block. The logo block moved the rack with the word assembly.

After DECworld the cell was used at the AutoFact show in Detroit. After that, it was returned to the mill and continued being used for demonstrations for countless customers over the next two years. In the end, we sold the cell to Aeroquip corporation as a learning lab for their engineers. The plan was to make small-scale car parts using the same plastic. Russ demonstrated how a small-scale version of a transmission housing could be machined.



Continued…

Members of the CIMlab team members that designed and constructed the work cell included Russ Stanton, Rob Davis, Bill Thorpe, John McCarthy, Laura Nickerson, and myself.

CIMlab team was taken in 1991. Starting at the left are: Al Cassista, Steve Gray, Rob Davis, Laura Nickerson, Theresa Degnan, Bill Thorpe, Janene Davis, and Russ Stanton. Lloyd Scarsdale and John McCarthy are not in picture.

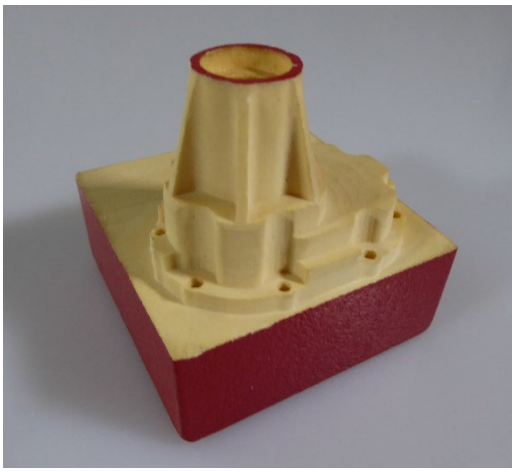
Also attached are a couple of other pictures;

A couple of customer logo blocks that I created

Continued…

a picture of a couple of letter blocks

the miniature version of the transmission housing that Russ completed at Aeroquip's request.



Best Regards, Steve Gray 1975 to 1998.

Steve's email as of July 2021 is:

Mustang_64_Plus@msn.com